

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A radio frequency (RF) receiver for a code division multiple access (CDMA) mobile communication base station system, which has a plurality of receive blocks for receiving RF signals via a plurality of antennas, and a plurality of frequency allocation (FA) [[FA]] -based channel cards, the RF receiver comprising:

an analog down-converting means for down-converting multi-FA RF signals on the respective reception paths output from the plural receive blocks to intermediate frequency (IF) signals; and

a digital down-converting means for converting the IF signals of 3 FA's on the respective reception paths output from the analog down-converting means to digital signals by reception paths, dividing the digital signals into in-phase (I) and quadrature (Q) channels, converting the divided digital signals into I/Q channel baseband signals, and outputting of the FA's on the respective reception paths to down convert the digital signals to I/Q channel baseband signals, and generating the FA-based I/Q channel baseband signals to the channel cards corresponding to the respective FA's.

2. (Original) The RF receiver as claimed in claim 1, wherein the analog down converting means comprises:

a local oscillator on the individual reception paths for generating a local frequency;  
a mixer on the individual reception paths for mixing the local frequency generated from the local oscillator with the multi-FA RF signals on the individual reception paths output from the plural receive blocks to generate multi-FA IF signals on the individual reception paths; and

an SAW filter on the individual reception paths for limiting the band of the multi-FA IF signals on the individual reception paths output from the individual mixer to the bandpass of a bandwidth corresponding to the multi-FA bandwidth.

3. (Original) The RF receiver as claimed in claim 2, wherein the multiple FA's are 3 FA's, the IF frequency on the individual reception paths of "0" and "1" is 70 MHz, and the bandwidth of the SAW filter is 3.75 MHz corresponding to the 3 FA's.

4. (Original) The RF receiver as claimed in claim 1, wherein the digital down-converting means comprises:

an analog-to-digital converter on the individual reception paths for converting the IF signals output from the analog down-converters to digital signals;

a FA-based digital unit on the individual reception paths for dividing the digital signals output from each analog-to-digital converter into the FA-based I/Q channels on the individual reception paths to perform QPSK demodulation and down-converting the I/Q channel digital signals to I/Q channel baseband signals; and

a multiplexer for multiplexing the reception paths and the I/Q channel baseband signals output from the FA-based digital unit and generating the multiplexed digital signals to the channel cards corresponding to the respective FA's.

5. (Original) The RF receiver as claimed in claim 4, wherein the digital unit comprises:

a first reception path 0FA digital unit for converting the digital signals output from the analog-to-digital converter corresponding to the first reception path to the I/Q channel baseband signals assigned to 0FA;

a first reception path 1FA digital unit for converting the digital signals output from the analog-to-digital converter corresponding to the first reception path to the I/Q channel baseband signals assigned to 1FA;

a first reception path 2FA digital unit for converting the digital signals output from the analog-to-digital converter corresponding to the first reception path to the I/Q channel baseband signals assigned to 2FA;

a second reception path 0FA digital unit for converting the digital signals output from the analog-to-digital converter corresponding to the second reception path to the I/Q channel baseband signals assigned to 0FA;

a second reception path 1FA digital unit for converting the digital signals output from the analog-to-digital converter corresponding to the second reception path to the I/Q channel baseband signals assigned to 1FA; and

a second reception path 2FA digital unit for converting the digital signals output from the analog-to-digital converter corresponding to the second reception path to the I/Q channel baseband signals assigned to 2FA.

6. (Original) The RF receiver as claimed in claim 4, wherein the individual FA-based digital unit comprises:

a channel divider for dividing the digital signals output from the analog-to-digital converter on the corresponding reception paths into I and Q channels for QPSK demodulation at the digital unit on the respective reception paths;

a local oscillator for generating a local frequency;

a mixer for mixing the local frequency generated from the local oscillator with the divided I/Q channel signals to convert the I/Q channel signals to I/Q channel baseband signals; and

a digital FIR filter for band-pass filtering the respective reception paths and the FA-based I/Q channel baseband signals output from the mixer and generating the band-limited baseband signals to the multiplexer.

7. (Original) The RF receiver as claimed in claim 4, wherein the multiplexer multiplexes:

the I/Q channel baseband signals output from the first reception path 0FA digital unit and the I/Q channel baseband signals output from the second reception path 0FA digital unit;

the I/Q channel baseband signals output from the first reception path 1FA digital unit and the I/Q channel baseband signals output from the second reception path 1FA digital unit; and

the I/Q channel baseband signals output from the first reception path 2FA digital unit and the I/Q channel baseband signals output from the second reception path 2FA digital unit, and generates the multiplexed signals to the channel cards corresponding to the respective FA's.

8. (Currently Amended) An RF receiver for a CDMA mobile communication base station system, which has two receive blocks for receiving RF signals via two antennas, and frequency allocation (FA) [[FA]]-based channel cards, the RF receiver comprising:

an analog down-converter for down-converting multi-FA RF signals on first and second reception paths output from the two receive blocks to IF signals;

two analog-to-digital converters for converting the down-converted IF signals on the first and second reception paths from the analog down-converter to digital signals;

FA-based digital units on the first and second reception paths for dividing the digital signals output from the two analog-to-digital converters into FA-based I and Q channels on the first and second reception paths to perform QPSK demodulation, and down-converting the I/Q channel digital signals to baseband signals; and

a multiplexer for multiplexing the first and second reception paths and the I/Q channel baseband signals on the first and second reception paths output from the FA-based digital units and outputting generating the multiplexed digital signals to the channel cards corresponding to the respective FA's.